Type 3374 Electric Actuator

Fig. 1 · Type 3374 Actuator mounted on a Type 3535 Three-way Valve

Mounting and Operating Instructions

EB 8331-1 EN

Edition July 2012

Contents Page

1 Design and principle of operation 5
1.1 Additional equipment 5
1.2 Technical data 6

2 Installation 8
2.1 Mounting position 8
2.2 Attachment to the valve 8

3 Electrical connections 10

4 Operation and setting 12
4.1 Manual operation of the actuator 12
4.2 Setting the additional equipment 12
4.2.1 Limit contacts 12
4.2.2 Resistance transmitters 12
4.3 Setting the digital positioner 14

5 Retrofitting additional electrical equipment 17
5.1 Installing the basic unit with new intermediate plate (index 6) 18
5.1.1 Limit contacts 18
5.1.2 Resistance transmitters or digital positioner 18
5.2 Limit contacts 20
5.3 Resistance transmitters 22
5.4 Digital positioner 23
5.4.1 Calibrating the positioner 23
5.4.2 Simplest method to calibrate the actuator 24

6 Dimensions in mm 25

Note: *Actuators with a CE marking fulfill the requirements of the Directives 94/9/EC and 89/336/EEC.*
The Declaration of Conformity is available on request.

General safety instructions

For your own safety, follow these instructions concerning the mounting, start-up and operation of the actuator:

- *The actuator is to be mounted, started up or operated only by trained and experienced personnel familiar with the product.*
  According to these Mounting and Operating Instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible dangers due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.
- *Any hazards that could be caused by the process medium, the operating pressure, the signal pressure or by moving parts of the control valve are to be prevented by means of the appropriate measures.*
- *The actuators are designed for use in low-voltage installations.*
  For wiring and maintenance, you are required to observe the relevant safety regulations. The actuator must be protected against unintentional reconnection of the power supply.
- *Before wiring the actuator, disconnect it from the power supply.*

To avoid damage to any equipment, the following also applies:

- *Proper transportation and storage are assumed.*

1 Design and principle of operation

The Type 3374 Electric Actuator is used in industrial plants as well as in heating, ventilation and air-conditioning systems.
The actuator is suitable for form-fit attachment to various SAMSON valve series, depending on the version with or without fail-safe action. The actuators consist of a reversible synchronous motor and a maintenance-free planetary gear with ball screw. The synchronous motor is switched off by torque-dependent switches when the final positions are reached or in case of an overload.

The motion is transmitted to the actuator stem by the gears and ball screw.

Actuator versions with integrated yoke are primarily used for attachment to Series V2001 Valves, Type 3260 (DN 65 to 150), and Type 3214 (DN 65 to 250) Valves. Actuator versions for central attachment using an M30 x 1.5 ring nut are preferably combined with Series 240 Valves and Type 3214 Valves (DN 125 to 150).

1.1 Additional equipment

The actuators can be equipped with additional units, such as limit contacts and resistance transmitters, to influence the tasks of control equipment. In addition, the actuator can be equipped with a digital positioner for processing standard signals in the range of 0/2 to 10 V or 0/4 to 20 mA.

Refer to section 5 for details on retrofitting additional equipment.

1.2 Technical data

Actuator Type 3374	-10	-11	-15	-21	-26	-31	-36
Version with	Yoke		Ring nut	Yoke	Ring nut	Yoke	Ring nut
Fail-safe action	Without			Stem extends		Stem retracts	
Rated travel mm	30	15	30	15			
Transit time for rated travel [3] s	240/120	120/60	240/120	120/60			
Transit time in case of fail-safe action s	–			12			
Thrust	2.5 kN Stem extends or retracts			2 kN Stem extends		0.5 kN Stem retracts	
Power supply	207 V to 253 V, 50 Hz · 90 V to 121 V, 60 Hz 21.6 V to 27.6 V, 50 Hz						
Power consumption VA Without positioner With positioner	7.5/13 9.5/15			10.5/16 12.5/18			
Motor switch-off	Torque-dependent						
Ambient temperature range	5 to 60 °C						
Storage temperature range	–20 to +70 °C						
Degree of protection	IP 54 according to EN 60529, (IP 65 with cable glands [1]) Suspended mounting position not approved						
Overvoltage category	II according to EN 60664						
Design and inspection	EN 61010 Edition 3.94						
Class of protection	II according to EN 61140						
Electromagnetic compatibility	According to EN 61000-6-2, EN 61000-6-3 and EN 61326						
Manual override	Using hex wrench · Adjustment not possible after fail-safe action has been triggered Manual adjustment of actuators with fail-safe action only possible when power supply is connected (see also section 4.1)						
Weight, approx. kg	3.2		3.3	3.9	4.0	3.5	3.6
Materials	Housing and cover made of plastic (PPO glass fiber reinforced)						
Additional electrical equipment							
Limit contact	Two travel-dependent, adjustable limit contacts, perm. load 250 V AC, 1 A						
Resistance transmitter [2]	0 to 1000 Ω, (0 to 900 Ω at rated travel) max. permissible current 1 mA						

[1] Cable glands M20 x 1.5 with metal nut, width across flats 23/24 mm

[2] Not for version with positioner

[3] Half the transit time possible for actuators with 50 Hz mains frequency

Digital positioner [1]				
		Operating mode 1	Operating mode 2	Operating mode 3
Input signal [2]	Range	4...20 mA, Ri = 0.05 kΩ 2...10 V, Ri = 10 kΩ	0...20 mA, Ri = 0.05 kΩ 0...10 V, Ri = 10 kΩ	As per settings [3]
	Resolution	10 Bit		
Position feedback signal [4]	Range	4...20 mA, R_B 0.2 ≤ kΩ 2...10 V, R_B ≥ 5 kΩ	0...20 mA, R_B ≤ 0.2 kΩ 0...10 V, R_B ≥ 5 kΩ	As per settings [3]
	Resolution	8 Bit		
Characteristic		Increasing, actuator stem retracts or extends as the input signal increases		As per settings [3]
Travel	Adjustable	6 to 19 mm at 15 mm rated travel 6 to 35 mm at 30 mm rated travel		
	Setting	Using travel calibration button (1 mm each time the button is pressed)		As per settings [3] using button
1 binary input		Electrically isolated, switching voltage 18 to 30 V DC, approx. 7 mA		
1 binary output		Electrically isolated semiconductor contact, max. 45 V DC, min. 3 V DC, max. 25 mA		
Integrated interface for SAMSON memory pen/PC		Data transmission including settings, operating status and alarms Transfer protocol: SAMSON SSP protocol		
Total delay time		Approx. 30 ms		
Accuracy		≤ 2.5 % without taking the dead band into account		

[1] Maximum two current inputs may be switched in series

[2] Maximum values ±50 mA or ±25 V

[3] SAMSON TROVIS-VIEW Operator Interface software, SAMSON memory pen

2 Installation

2.1 Mounting position

Installation depends on the mounting position of the valve. However, do not install the actuator suspended downwards.

Note: *Manual override is only possible in actuators with fail-safe action when the power supply is connected (see section 4.1).*

2.2 Attachment to the valve

Series V2001 (DN 15 to 80),
Type 3260 Valve (DN 65 to 150) and
Type 3214 Valve (DN 65 to 100)

1. Remove protective covers and unscrew nut (6) from the valve.
2. Retract actuator stem slightly using the manual override.
   Place actuator with yoke onto the valve and fasten with the nut (6, SW 36) using a minimum tightening torque of 150 Nm.
3. When the plug stem (5) fits closely onto the actuator stem (3), attach both stem connector clamps (4) and fasten with screws.

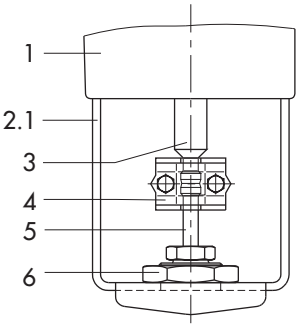
Series 240

1. Push plug stem down to close the valve.
2. Turn stem connector nut (8) until a distance of x = 75 mm (x = 90 mm for DN 100 and larger) between the top of the yoke and the top of the stem connector nut (8) is reached. Secure position with lock nut (9).
3. Place actuator onto valve bonnet (2.3) and fasten with ring nut (7).
   If necessary, retract actuator stem slightly beforehand using the manual override.
4. When the stem connector nut (8) fits closely onto the actuator stem, attach both stem connector clamps (4) and screw tight.
5. Move actuator stem (3) to the end position (valve closed) using the manual override or motor.
6. Align travel indicator scale (10) to the middle of the stem connector (4) and screw tight.

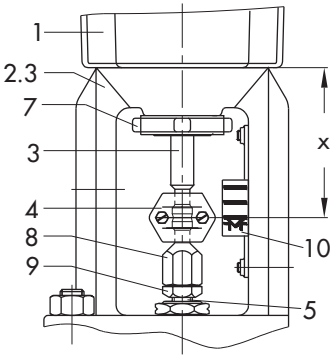
Type 3214 (DN 125 to 250)

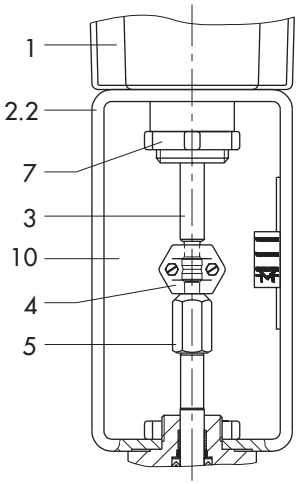
1. Place actuator onto the valve and secure with the ring nut (7). If necessary, retract actuator stem slightly beforehand using the manual override.
2. When the plug stem fits closely onto the actuator stem (3), attach both stem connector clamps (4) and screw tight.
3. Move actuator stem (3) to the end position (valve closed) using the manual override or motor.
4. Align travel indicator scale (10) to the middle of the stem connector (4) and screw tight.

Attachment to Series V2001, Type 3260 (DN 65 to 150) and Type 3214 (DN 65 to 100)



Attachment to Series 240





Attachment to Type 3214 (DN 125 to 250)

1	Actuator
2.1	Actuator yoke
2.2	Valve yoke
2.3	Bonnet
3	Actuator stem
4	Stem connector
5	Plug stem
6	Nut
7	Ring nut
8	Stem connector nut
9	Lock nut
10	Travel indicator scale

Fig. 2 · Attachment to the valve

3 Electrical connections

Upon installation of the electric cables, you are required to observe the regulations concerning low-voltage installations according to DIN VDE 0100 as well as the regulations of your local power supplier.

Establish electrical connections as indicated on the circuit diagram on the actuator cover and as illustrated in Figs. 3 and 4.
A maximum of three cable glands can be attached to the housing for cable entries.

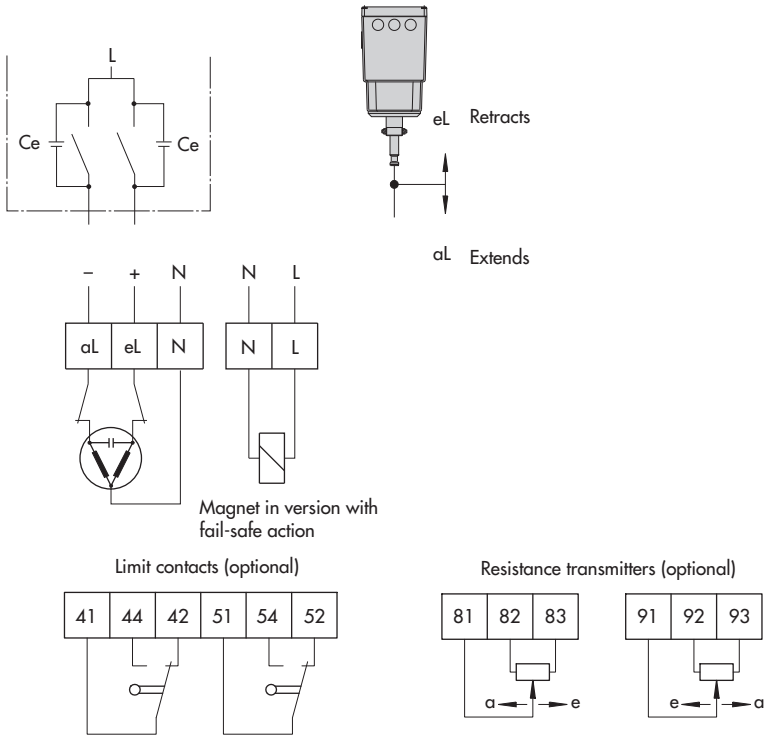


Fig. 3 · Terminal connections, version for three-point stepping signal

CAUTION!

- Only connect to the mains power network when the power is switched off.
- Only use power interruption devices which ensure that the power cannot be switched on again unintentionally.
- Particularly for 24 V/50 Hz actuators, use wires with a sufficiently large cross-section to guarantee that the permissible voltage tolerances are not exceeded.

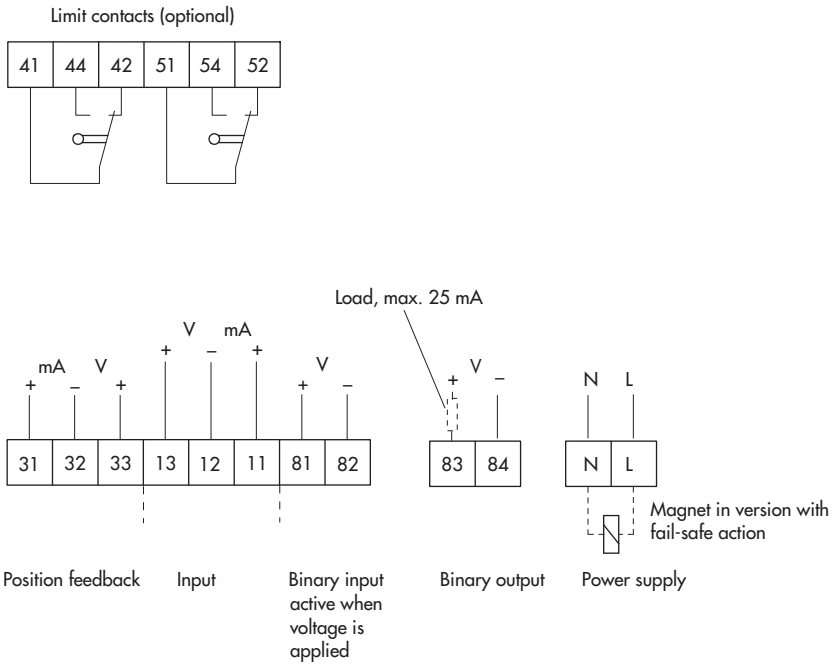


Fig. 4 · Terminal connections, version with digital positioner

4 Operation and setting

4.1 Manual operation of the actuator

To operate the manual override, place a 4 mm hex wrench on the red actuator shaft located at the side of the housing. The hex wrench is included in the scope of delivery. It is attached to the bottom of the housing.

Manual override is only possible in actuators with fail-safe action when the power supply is connected (terminals N and L).

Set the selector switch (2 in Fig. 6) of the actuator with positioner to the operating mode **0** = ⌐¬.

4.2 Setting the additional equipment

To access the additional equipment, unscrew the four fixing screws on the cover using a Pozidrive PZ2 screwdriver to provide enough hold on the screw heads. Take off the cover.
After completing the settings and establishing the electrical connection, refasten the cover. To proceed, place back on the cover and screw the cover screws in slightly to position the cover before tightening them properly.

Perform settings while the power is switched on!

4.2.1 Limit contacts

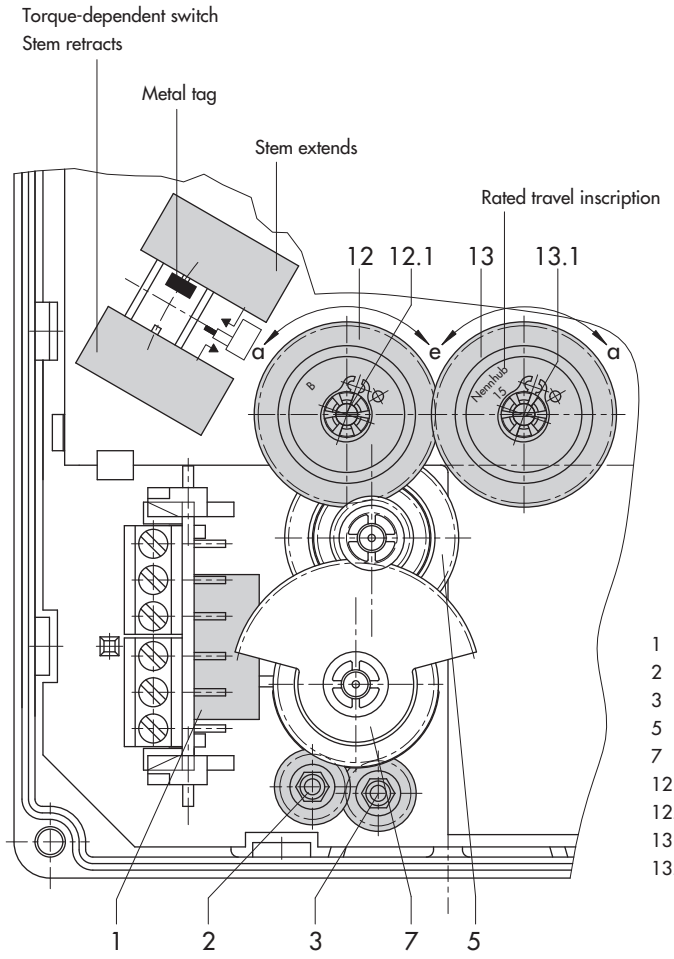
1. Use motor or manual override to move the valve to the position where the switching function is to be activated.
2. Use a hex wrench to turn spindle (2) for the upper limit contact or spindle (3) for the lower limit contact until the associated contact cam on the cam bracket (7) triggers the switch contact of the upper or lower microswitch (1).

4.2.2 Resistance transmitters

The gears of the potentiometers (12) and (13) must be put onto their shafts to correspond with the rated travel of the valve. The rated travel inscription 'Nennhub 15' (or B) or 'Nennhub 30' (or A) must be legible. If this is not the case, pull both potentiometer gears off their shafts and put them back on again with the reverse side of the wheel facing upwards, ensuring they are aligned fairly flush with the potentiometer shaft.

Zero point adjustment

1. Use motor or manual override to move the valve to the desired end position.
2. Place a screwdriver on the slotted potentiometer shaft (12.1 and 13.1).
3. Calibrate resistance transmitter using the connected ohmmeter correspondingly:
   Actuator stem extends:
   81/82 = 0 Ω ; 91/93 = 0 Ω ;
   Actuator stem retracts:
   81/83 = 0 Ω ; 91/92 = 0 Ω .



1 Microswitch
2 Spindle upwards
3 Spindle downwards
5 Intermediate gear
7 Cam bracket
12 Gear potentiometer 1
12.1 Potentiometer shaft
13 Gear potentiometer 2
13.1 Potentiometer shaft

Fig. 5 · Performing settings

4.3 Setting the digital positioner

In the actuator version with digital positioner, the travel is calibrated automatically, allowing the travel (controlled variable x) and the input signal (reference variable w) of the positioner to be matched in the best possible way. Additionally, the digital positioner provides valve position feedback for remote transmission.

Setting and start-up can be carried out using four different operating modes. Operating modes **1** and **2** work with set data stored in the positioner's memory. The user only needs to select the operating mode via the selector switch (2) and press the button (4) to start travel calibration.

Note: *Setup with operating modes **3** and **0** = ⌐¬ can only be performed using a SAMSON memory pen as the storage medium, or in connection with SAMSON's TROVIS-VIEW Configuration and Operator Interface software and a PC or bus system. Setup with operating modes **3** and **0** = ⌐¬ is described in Mounting and Operating Instructions **EB 8331-2 EN**.*

Settings for operating modes 1 and 2

Increasing characteristic: actuator stem retracts or extends as the input signal increases.

After the actuator has been mounted on the valve as described in section 2.2 and the electrical connections have been established as described in section 3, proceed as follows:

1. Set selector switch (2) with the arrow pointing to operating mode **0** = ⌐¬ (closed-loop operation switched off).
2. Check mounting position of the potentiometer gear (12).

The gear must be put onto the potentiometer shaft to correspond with the rated travel of the valve. The inscription **Nennhub 15** or **B** (for 6 to 19 mm travel) or **Nennhub 30** or **A** (for 6 to 35 mm travel) must be legible from above on the associated gear side. If this is not the case, pull the gear off the shaft and put it back on again with the reverse side facing upwards, allowing the intermediate gear to engage properly.

NOTICE

Actuators with fail-safe action "Actuator stem retracts" or "extends" are only designed for a rated travel of 15 mm. Do not reposition the gear!

Make sure that the shaft of the potentiometer (12.1) is adjusted correctly.

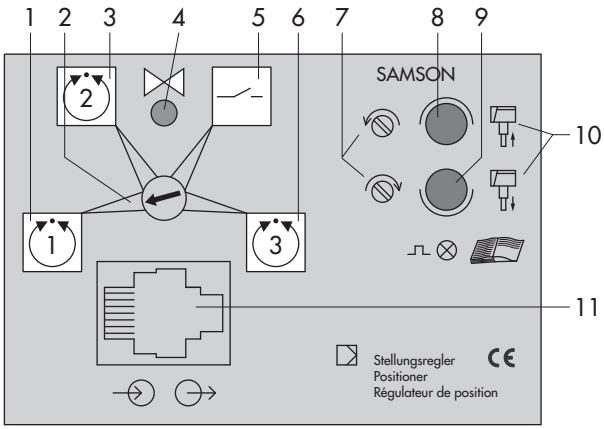
3. Switch on power supply and set the input signal to a current > 4 mA.
4. Set selector switch (2) with the arrow pointing to operating mode **1** for 4 to 20 mA or 2 to 10 V input and alarm signal, or set it to operating mode **2** for 0 to 20 mA or 0 to 10 V input and alarm signal.
5. Press button (4) to start travel calibration.

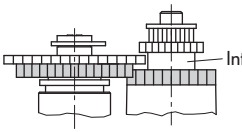
Press the button briefly to obtain a travel calibration for valve CLOSED when the actuator stem **extends**.
Direction of action: Increasing/increasing.

Hold the button pressed for longer than three seconds (indicated by switchover from signal lamp 8 to signal lamp 9) to obtain a travel calibration for valve CLOSED when the actuator stem **retracts**.
Direction of action: Increasing/decreasing.

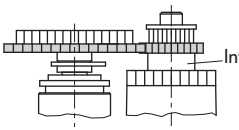
CAUTION!
The automatic travel calibration lasts approximately twice as long as the actuator's transit time. During this period, the valve leaves its current position. Calibrate the travel either on the test bench or when the shut-off valves in the plant are closed.

1 Operating mode 1
2 Selector switch
3 Operating mode2
4 Travel calibration button
5 Operating mode 0
6 Operating mode 3
7 Potentiometer counter-clockwise or clockwise
8 Signal lamp
9 Signal lamp
10 Actuator stem extends and retracts
11 Interface jack
12 Potentiometer gear
12.1 Potentiometer shaft





Gear (12)
Position for 15 mm rated travel (B)



Gear (12)
Position for 30 mm rated travel (A)

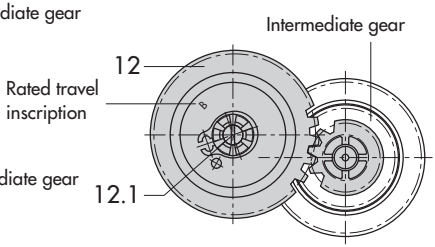


Fig. 6 · Selector switch and position of potentiometer gears in version with digital positioner

After pressing the travel calibration button (4), the actuator stem first moves as far as it will go to the valve's CLOSED position. Calibration is in progress when both signal lamps (8 and 9) are lit.

Travel calibration starts after the mounting position of the potentiometer gear (12) has been determined automatically. This is indicated by signal lamp (8) for 6 to 35 mm travel and by signal lamp (9) for 6 to 19 mm travel.

When travel calibration starts, the lower signal lamp (9) blinks quickly for about 10 seconds. The actuator stem retracts as far as it will go (maximum travel - valve OPEN).

Travel calibration is successfully completed when the end position is reached. The actuator is in closed-loop operation. The actuator stem moves to the valve position determined by the input signal.

NOTICE

If one of the signal lamps starts to blink slowly after the travel calibration button has been pressed and the actuator stem has extended to the valve's CLOSED position, the potentiometer shaft (12.1) has been wrongly positioned. Remount it manually.

Do not adjust the potentiometer before the closed position is actually reached. This is indicated by the associated, activated switch on the board (Fig. 5 on page 13).
To proceed, adjust the shaft of the potentiometer (12.1) by turning it gradually clockwise or counterclockwise with a screwdriver until the signal lamp stops blinking and is constantly illuminated. Turn the screwdriver counterclockwise if the upper signal lamp (8) blinks, and clockwise if the lower signal lamp (9) blinks, corresponding to the icons (7). Travel calibration does not continue until both signal lamps are illuminated at the same time.

NOTICE

If both signal lamps start to blink simultaneously during travel calibration, interrupt calibration by pressing the travel calibration button (4) and check the mounting position of the potentiometer gear (12) again.
If no travel motion can be determined during calibration, e.g. due to a loose or missing potentiometer gear, both signal lamps blink in alternating sequence.
If this is the case, interrupt travel calibration by pressing the button (4), correct the fault, and restart calibration by pressing the button (4) again.

Setting with limited travel range

Travel calibration is usually based on the maximum travel of the valve.

If, however, the maximum possible travel is to be limited to a smaller travel end value, press the button (4) once at the start of calibration while the signal lamp blinks for 10 seconds. As a result, travel calibration via the potentiometer gear with rated travel 15 or 30 is limited to 6 mm. Each time the button is pressed, the travel range is increased by 1 mm.

If, for example, a valve designed for 15 mm is to be operated with a limited travel range of 10 mm, press the button (4) five times during the 10 second time limit. The top signal lamp (8) flashes each time the key is pressed.

Reporting defined events

At the binary output (terminal 83 and 84), predefined events can be indicated (see EB 8331-2 EN) during positioner operation and transmitted to a control room.

5 Retrofitting additional electrical equipment

CAUTION!
When installing electrical equipment, make sure the power supply and the signal input are disconnected. Only use power interruption devices which are protected against unintentional reconnection of the power supply.

Note: *We recommend to apply a small amount of lubricant (e.g. Vaseline) to the spindles on the gear faces and to the sides of the cogs.*

The actuator can be subsequently equipped with two limit contacts, two resistance transmitters or a digital positioner.

Depending on the actuator version used, the actuator PCB needs to be replaced as well (see sections 5.2, 5.3 and 5.4).

The actuator version is marked on the nameplate, e.g. Var.-ID 1063729.

When ordering additional electrical equipment from the manufacturer, include this model number in the order.

To install the limit contacts, resistance transmitters or a digital positioner, the basic unit (1400-8829) is required.

Old intermediate plate

The old intermediate plate model is marked with less than six dots. The retrofitting of the additional electrical equipment involves installing the spindle gear and intermediate gear included in the basic unit (1400-8829). The basic unit is not required if a resistance transmitter or a digital positioner is already installed in the actuator.

New intermediate plate (index 6)

The new intermediate plate with index 6 is marked with six dots (●●●●●●). The retrofitting of the additional electrical equipment involves installing all the components included in the basic unit (1400-8829). See Fig. 7 and section 5.1).

2	Spindle gear	14.1	Tension spring
5	Intermediate gear	14.2	Shim
10	Serrated ring (for 5)	14.3	Serrated ring (for 14.2)

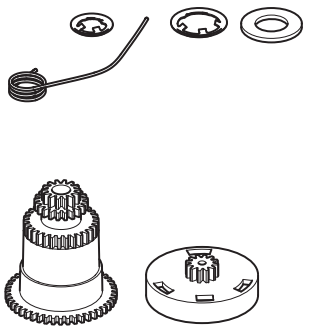


Fig. 7 · Components included in basic unit (1400-8829)

5.1 Installing the basic unit with new intermediate plate (index 6)

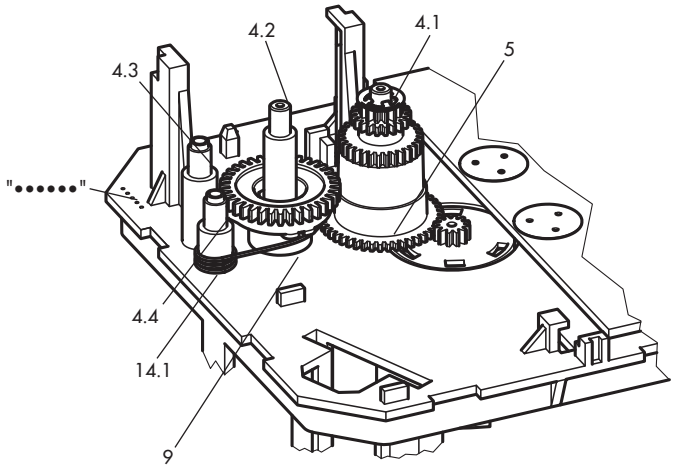
Note: *This section only describes the additional mounting instructions for retrofitting the additional electrical equipment with the new intermediate plate (index 6). First follow the instructions described in sections 5.2, 5.3 or 5.4*

5.1.1 Limit contacts

Fig. 8: Place tension spring (14.1) on spindle 4 (4.4), ensuring that the long wire of the spring rests on the spacer (9) and on the intermediate gear (5), while the short wire is located between spindle 3 (4.3) and spindle 4 (4.4).
Continue installation following instructions in step 8 on page 20.

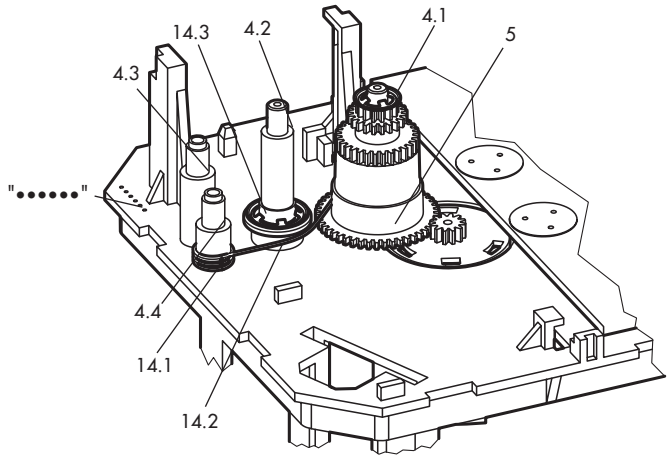
5.1.2 Resistance transmitters or digital positioner

Fig. 9: Place tension spring (14.1) on spindle 4 (4.4), ensuring that the long wire of the spring rests on the intermediate gear (5), while the short wire is located between spindle 3 (4.3) and spindle 4 (4.4). Place the shim (14.2) on spindle 2 (4.2). Then attach the serrated ring (14.3) and push it down as far as it will go.
Continue installation following instructions in step 4 on page 22 or page 23.



4.1 Spindle 1
4.2 Spindle 2
4.3 Spindle 3
4.4 Spindle 4
5 Intermediate gear
9 Spacer
14.1 Tension spring

Fig. 8 · Installing the limit contacts



4.1 Spindle 1
4.2 Spindle 2
4.3 Spindle 3
4.4 Spindle 4
5 Intermediate gear
14.1 Tension spring
14.2 Shim
14.3 Serrated ring

Fig. 9 · Installing the resistance transmitters or digital positioner

5.2 Limit contacts

The retrofit kit (order no. **1402-0898**) is required to install limit contacts.

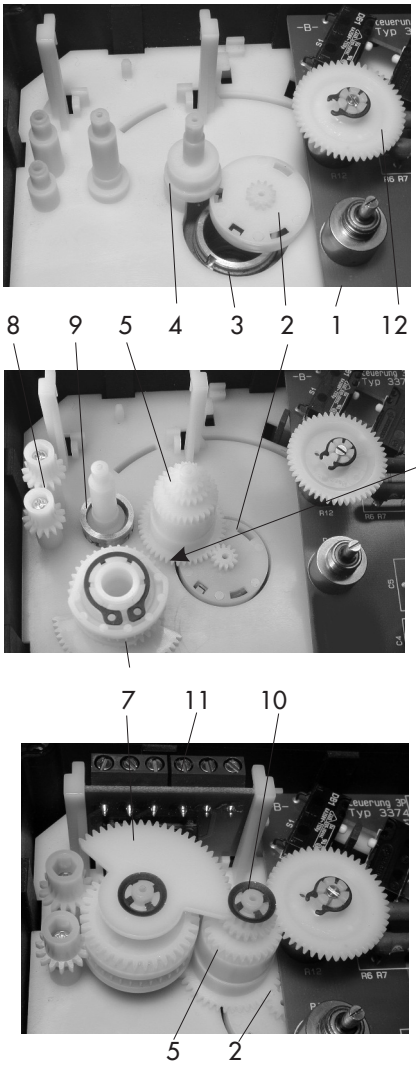
Note: *To install the limit contacts, the actuator stem must be in end position, i.e. the stem must be either fully extended or fully retracted. If necessary, move the stem to the appropriate position using the manual override at the side.*

1. Remove the fastening screws. Push the actuator board (1) from its guiding to the right. Slightly lift the board and continue pushing it further towards the cable entry.
2. Clip the spindle gear (2) onto the sleeve (3). Make sure the lateral latch is properly engaged in the groove of the sleeve.
3. Plug intermediate gear (5) onto the spindle (4). Place the serrated ring (10) on top and push it down as far as it will go.
4. Plug both ready-assembled contact cams (6) with the cog first onto the cam bracket (7).
5. Push adjustment gears (8) onto their spindles and fasten with one screw each. Check whether the adjustment gears can be turned easily. If not, slightly loosen the screw again.
6. Turn both contact cams (6) as illustrated in Fig. 10.1 corresponding with the position of the actuator stem on the cam bracket (7).
7. Push the spacer (9) onto the spindle for the cam bracket.

Note: *At this point, follow the instructions described in section 5.1.1 on page 18 when a new intermediate plate (with index 6) is used.*

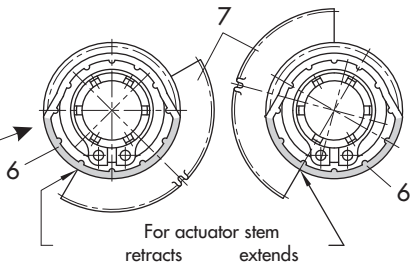
8. Push the cam bracket with both cams onto the spindle corresponding with the position of the actuator stem as illustrated in Fig. 10.2. Make sure that the outermost cog of the cam bracket (7) engages in the gearwheel of the intermediate gear (5). In addition, the adjustment gears (8) must engage properly in the corresponding gears of the contact cams (6).
9. Secure the cam bracket (7) and intermediate gear (5) with the serrated ring (10), pushing the ring down as far as it will go.
10. Position the terminal board (11) at the base of the support at a 45° angle (approx.) with the switches facing towards the gears. Push the upper end of the terminal board towards the gears until the board is in a vertical position and properly engaged in the support.
11. Push the actuator board (1) back into its guiding. Make sure that the gears are properly engaged. Fasten the board using screws.

▷ Adjust limit contacts as described in section 4.2.1.



1 Actuator board
2 Spindle gear
3 Sleeve
4 Spindle
5 Intermediate gear
6 Contact cam
7 Cam bracket
8 Adjustment gear
9 Spacer
10 Serrated ring
11 Terminal board with microswitches
12 Gear in version with resistance transmitter

10.1 Position of the contact cams (6) on the cam bracket (7)



10.2 Position of the cam bracket (7)

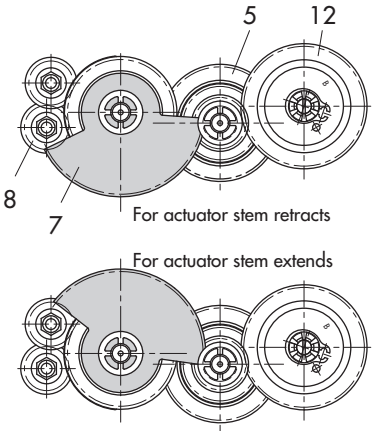


Fig. 10 · Retrofitting limit contacts, in this example model 3374-11000002000, version with resistance transmitters

5.3 Resistance transmitters

Actuators with a digital positioner cannot be equipped with resistance transmitters.

To install the resistance transmitters, an actuator board with the appropriate potentiometers and gears (12 and 13) is required.

1. Remove the fastening screws. Push the actuator board (1) from its guiding to the right. Take out the board and replace it with a board with potentiometers.
2. Clip the spindle gear (2) onto the sleeve (3) as illustrated in Fig. 10.1 (top). Make sure the lateral latch is properly engaged in the groove of the sleeve.
3. Plug intermediate gear (5) onto the spindle 1 (4.1). Place the serrated ring (10) on top and push it down as far as it will go.

1	Actuator board	10	Serrated ring
2	Contact cam	12	Gear potentiometer 1
5	Intermediate gear	13	Gear potentiometer 2

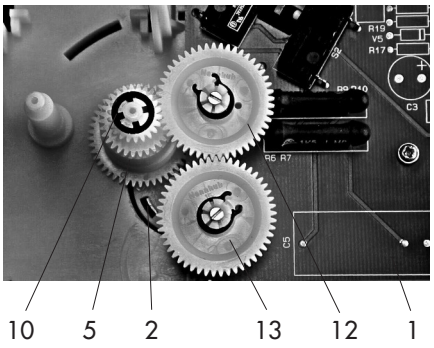


Fig. 11 · Version with resistance transmitter

Note: *At this point, follow the instructions described in section 5.1.2 on page 18 when a new intermediate plate (with index 6) is used.*

4. The potentiometer gears (12 and 13) with retaining rings must be put onto their shafts corresponding with the rated travel of the valve. The rated travel inscription 'Nennhub 15' or B (on the upper side with the retaining ring) or 'Nennhub 30' or A (lower side) must be legible from above (also see Figs. 5 and 6).
5. Push the actuator board back into its guiding. Make sure that the gears are properly engaged. Fasten the board using screws.

▷ Adjust the resistance transmitters as described in section 4.2.2.

5.4 Digital positioner

To install a positioner, a corresponding actuator PCB and the TROVIS-VIEW software as well as a connecting cable (1400-7699) are necessary.

Note: *Actuators with a digital positioner cannot be equipped with resistance transmitters.*

---

1. Remove the fastening screws. Push the actuator board (1) from its guiding to the right. Take out the board and replace it with a board with positioner.
2. Clip the spindle gear (2) onto the sleeve (3) as illustrated at the top of Fig. 12 (top). Make sure the lateral latch is properly engaged in the groove of the sleeve.
3. Plug intermediate gear (5) onto the spindle (4). Place the serrated ring (10) on top and push it down as far as it will go.

Note: *At this point, follow the instructions described in section 5.1.2 on page 18 when a new intermediate plate (index 6) is used.*

---

4. The gear (12) on the feedback potentiometer, which is equipped with a retaining ring, must be put onto its shaft corresponding with the rated travel of the valve. The rated travel inscription 'Nennhub 15' or B (on the upper side with the retaining ring) or 'Nennhub 30' or A (lower side) must be legible from above (also see Figs. 5 and 6).
5. Push the actuator board (1) back into its guiding. Make sure that the gears are properly engaged. Fasten the board using screws.

5.4.1 Calibrating the positioner

5 Intermediate gear
6 Contact cam
7 Cam bracket
8 Adjustment gears
10 Serrated ring
12 Gear feedback potentiometer

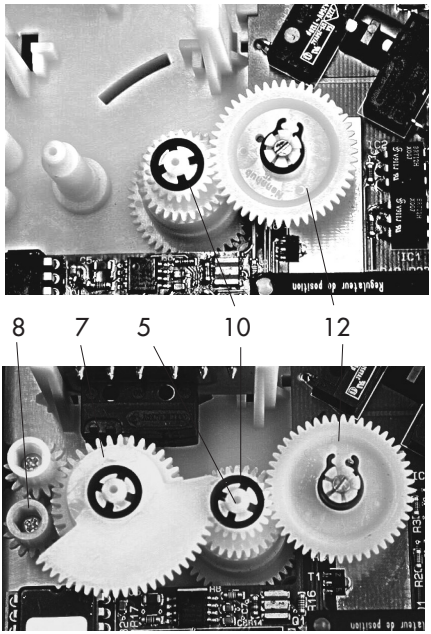


Fig. 12 · Version with positioner without (top) and with (bottom) limit contacts

To calibrate the positioner, proceed as described in section 4 of EB 8331-2 EN.

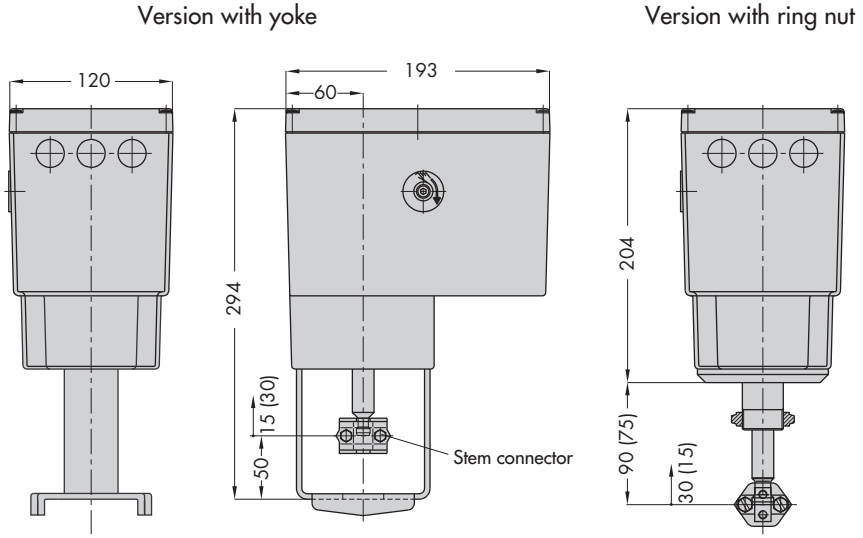
5.4.2 Simplest method to calibrate the actuator

If tools, such as the TROVIS-VIEW software or a PC, are not available for calibration of the actuator and the actuator operation with maximum precision is not necessary, the simplest calibration method can be performed as follows:

1. Position the selector switch (2) to operating mode **0** = ⌐¬ .
2. Press down the travel calibration button (5) for at least 15 seconds until both signal lamps light up.
3. Release the button to start calibration.
   The actuator stem extends until the torque-dependent switches switch off the actuator.
   The position of the potentiometer is checked.
4. Re-adjust the potentiometer, if necessary, while observing the signal lamps. Refer to the description given on page 14 of EB 8331-2 EN.
   After adjusting the potentiometer, the calibration of the actuator is continued.

▶ Mount the actuator on the valve and set the positioner as described in section 4.3 of these instructions.

6 Dimensions in mm



SAMSON AG · MESS- UND REGELTECHNIK
Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507
Internet: http://www.samson.de

EB 8331-1 EN 2014-05